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WALES.

By Consul M. K. Moorehead, Swansea, March 21.

According to advance information supplied by the harbor authorities, the total sea-borne trade of the three principal ports of the Swansea district (Swansea, Port Talbot, and Llanelly) amounted to 6,185,113 long tons during 1917 compared with 8,212,898 tons in 1916, 8,650,463 in 1915, 8,803,068 in 1914, and 10,641,271 in 1913. The decrease during 1917 from the trade of the prewar year 1913 was 4,456,158 tons, or nearly 42 per cent. The following table shows the imports and exports in tons of 2,240 pounds through each of the three leading ports of the Swansea district during the five years ended December 31, 1917:

Items.	1913	1914	1915	1916	1917
Imports:	*Long tons.*	*Long tons.*	*Long tons.*	*Long tons.*	*Long tons.*
Swansea	1,096,999	1,005,844	809,003	671,324	499,017
Port Talbot	278,175	226,828	217,137	190,365	178,501
Llanelly	182,475	206,240	70,815	23,138	6,556
Total	1,557,649	1,438,912	1,096,955	884,827	684,074
Exports:					
Swansea	6,134,251	5,085,813	5,067,474	4,484,769	3,597,250
Port Talbot	2,519,671	1,907,725	2,261,078	2,622,354	1,710,699
Llanelly	429,700	370,618	224,956	220,948	193,090
Total	9,083,622	7,364,156	7,553,508	7,328,071	5,501,039
Total trade	10,641,271	8,803,068	8,650,463	8,212,898	6,185,113

Decrease at Various Ports.

The total sea-borne import trade of the three leading ports of the Swansea district decreased during 1917 by 56 per cent and exports by 39 per cent. At Swansea the imports declined by 54 per cent and exports by 41 per cent; at Port Talbot by 35 per cent in imports and 32 per cent in exports; at Llanelly imports by 96 per cent and exports by 55 per cent.

The small decrease in the trade of Port Talbot compared with Swansea during 1917 as against 1913 was due mainly to the fact that in 1913 the new dock at Port Talbot was not completed. With the completion of this dock in 1915, and the installation of cargo-handling machinery by 1916, the port was in a position to handle greatly increased shipping, so that in 1916 the exports, notwithstanding the dislocation of trade due to the war, were greater than in 1913.

The very large decrease in the trade of Llanelly during 1917 as compared with 1913 (96 per cent in imports and 55 per cent in exports) is due to the fact that Llanelly's trade consists almost entirely

of a few items, imports of pig iron, iron ore, and steel bars for the manufacture of tin plates, and exports of tin plates and coal. During the war, on account of the shortage of tonnage and restrictions on the exports of tin plates, its trade has been diverted largely to Swansea.

The imports of Swansea by sea during 1917 amounted to 499,017 long tons, showing a decrease of 172,307 tons compared with 1916, 309,986 tons compared with 1915, 506,827 tons compared with 1914, and 597,982 tons compared with 1913. The imports of Swansea consist chiefly of raw products for the steel mills and smelting plants as zinc, copper, nickel, sulphur, and iron ores, pig iron, tin-plate bars; pitwood for the coal mines; foodstuffss, especially grain and fish; and pitch for the manufacture of coal briquetes.

Activities in Zinc Smelting.

Swansea has been for a number of years the center of the zinc-smelting industry of the United Kingdom. In 1913 only about 60,000 tons of spelter were produced in the United Kingdom out of a total consumption of 195,000 tons. Previous to the war the United Kingdom imported about two-thirds of its spelter requirements, principally from Belgium. In the prewar period the Swansea spelter works, with a production of less than 60,000 tons, were not in a prosperous condition on account of the keen competition of the Belgium and German works, where the low cost of labor made it almost impossible for the Swansea smelters to compete successfully. The result was that the Swansea works were old-fashioned and badly equipped, according to the report of the "Commission of Enquiry into Industrial Unrest in Wales" (1917). Since the outbreak of war the Swansea smelting plants have been improved greatly, so that their capacities are now equal to nearly 100,000 tons of spelter per annum. Previous to the war Australia produced annually about 400,000 tons of zinc concentrates, of which 80 per cent went to Germany. By means of assistance from the British Government, the Australian producers hope, as soon as ships are available, to dispose of their entire production in the United Kingdom. The prewar production of Australia, 400,000 tons of zinc concentrates, would equal about 154,000 tons of spelter. To accomplish this the capacities of the local smelters will have to be increased by at least 54,000 tons per annum. With this end in view the Swansea Vale Spelter Co. is erecting a new plant at Avonmouth, near Bristol.

Australian Zinc Ore Imports Decreasing.

In 1913 only 56,517 tons of zinc ore were imported into Swansea; in 1914 about 97,450 tons. After the outbreak of war, the German market for Australian ores having closed, shipments were diverted to the United Kingdom, thus accounting for the large increase in that year of zinc ore imported into Swansea. In 1915, however, these imports declined to 58,048 tons and in 1916 to 54,958. These large decreases were due to the impossibility of obtaining ships for the transportation of the ore from Australia. According to the official returns of the Harbor Trust, imports of ores into Swansea from Australia amounted to 8,579 tons in 1913, 37,889 in 1914, no imports in 1915, and 3,007 tons in 1916. Figures for 1917 are not yet available, but it is learned that there was no importation of Australian ores in 1917.

During 1915, 1916, and 1917 most of the supplies of zinc ore came from Spain, North Africa, and Italy. In 1917 the imports into Swansea increased to 86,499 tons, which is the largest importation on record with the exception of 1914, when increased supplies of Australian ore were received.

Official Government figures of imports during 1917 are not yet available. It is estimated, however, that about 98 per cent of the zinc ore imported into the United Kingdom is smelted in the Swansea district. During 1917 the Swansea Spelter Works worked at top speed and facilities for increased production have been much improved. During the latter part of the year, however, a number of furnaces were idle on account of the shortage in the supplies of ore. Although greatly increased quantities of ore were imported in 1917, yet this increase did not keep up with the increased capacities of the furnaces.

Government Fixes 1917 Spelter Prices—Pig Iron Industry.

The price of spelter during 1917 was maintained at a fairly regular rate and was not subject to the violent fluctuations prevalent in 1915 and 1916. The average price during January, 1917, was $214.13 per ton and by March had risen to $282.26. In May the price was fixed by the Government at $243.32 to $262.79. In 1913 the normal price was just under $100 per ton. In 1915 the price of spelter fluctuated violently, from $136.26 to $583.98, and in 1916 from $214.12 to $510.98.

With the exception of the manufacture of tin, terne, black plates, galvanized sheets, and steel bars for tin plates, the iron and steel industry of the Swansea district is not of outstanding importance as compared with the Cardiff district. According to the Labor Gazette for January, 1918, at the end of December, 1917, only 13 pig-iron furnaces were in blast in South Wales, an increase of one over the previous year. The majority of these furnaces are located in the Cardiff district. The only works in the Swansea district manufacturing pig iron are those at Landore (Baldwins) and at Briton Ferry (Briton Ferry Steel Works). Messrs. Baldwins (Ltd.) are erecting blast furnaces at Port Talbot that are expected to be completed in 1918.

Iron Production in South Wales.

No official figures are obtainable showing the production of pig iron in South Wales, although there is no doubt that the production in 1917 was much in excess of the normal. Increased quantities of iron ore were received during the year from Spain. The imports of iron ore at Swansea and Port Talbot during 1917 reached the record figure of 189,682 tons, as compared with only 82,040 in 1913; 97,120 in 1914; 155,361 in 1915; and 83,224 in 1916. Imports of iron ore at Swansea, however, declined from 77,337 tons in 1913 to 65,070 in 1917, while at Port Talbot only 4,703 tons were imported in 1913 as against 124,612 in 1917. The noteworthy increase at Port Talbot was due to the better facilities of the port since the completion of the new docks in 1915, also to greater capacities of the blast furnaces at Briton Ferry, near Port Talbot.

A large tube works is located at Landore, near Swansea. This company employs nearly 2,000 workers and with the exception of

the tinplate and smelting furnaces is one of the most important and prosperous industries in the Swansea district.

In normal times the imports into the Swansea district of pig iron, scrap iron, and steel bars were fairly large, amounting in 1913 to 370,970 tons and in 1914 to 384,168 tons. In 1917 these imports amounted to only 92,391 tons as against 85,163 tons in 1916. Only 12,023 tons of steel bars were imported into Swansea in 1917 compared with 21,202 tons in 1913 and 44,102 tons in 1914. These steel bars are used largely in the manufacture of tin plates.

Imports of Sulphur Ores—Receipts of Pit Wood.

Sulphur ores, chiefly iron and copper pyrites, are used largely for smelting purposes in the various metallurgical works in Swansea. The imports in 1916 reached the record figure of 116,695 tons, and in 1917 declined to 27,552 tons. In 1913 the imports amounted to 63,456 tons. The increase in 1916 was due to large extensions made to the smelting works, the rapid decline in 1917 to the shortage of tonnage. Sulphur ores used in Swansea are imported chiefly from Spain.

During 1913 approximately 1,750,000 tons of pit wood were imported into South Wales for use in the coal mines. The supplies came chiefly from France, Spain, and Portugal and to some extent from the Baltic ports. The imports of pit wood into the three principal ports of the Swansea district during each of the five years 1913 to 1917 are given in the following table in long tons of 2,240 pounds:

Port.	1913	1914	1915	1916	1917
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Swansea	137,496	94,317	93,169	91,586	47,731
Port Talbot	66,221	50,924	36,811	53,939	19,904
Llanelly	12,959	18,761	3,899	3,887	.....
Total	216,676	164,002	133,879	149,412	67,635

The remarkable decrease from 216,676 tons in 1913 to only 67,635 tons in 1917 shows the extent to which the war has affected the trade in pit wood. During the war the sources of supply in Scandinavia and Russia have been practically cut off, while the shortage of tonnage has prevented normal quantities being obtained from Spain and France. During 1917 a decrease of more than one-half occurred in imports of pit wood compared with 1916, due to the prohibition of importation except by licenses. This prohibition was necessary in order to conserve the available tonnage for more important cargoes. To make up for the shortage efforts were made to obtain supplies in Canada and Newfoundland. In 1915 Newfoundland supplied South Wales with 67,944 tons of pit wood and in 1916 Canada and Newfoundland furnished 91,310 tons. During 1916 the Government made increasing efforts to develop the felling of timber within the United Kingdom. Skilled lumber men were imported from Canada.

Forestry Department Head Appointed.

In 1917 the War Department appointed Sir Bampfylde Fuller, one-time governor of Bengal, who had received a wide experience in forestry in connection with the Forestry Department of the Gov-

ernment of India, to take charge of a department to stimulate the production of timber in the United Kingdom. The coal mining companies were requested to supply 3,000 miners for the felling of timber for the mines and conditions of employment were fixed on the following basis: For single men, $1.82½ per day of nine hours, plus $1.82½ per week lodging allowance, equivalent to a weekly wage of $11.80. For married men and single men who are the main support of a family the weekly lodging allowance was fixed at $2.43, which is equivalnt to a weekly wage of $13.38.

Early in 1917 the coal owners of South Wales formed a "Coal Owners Pitwood Association" for the purchase and distribution of home-grown timber. The object of this association was to prevent indiscriminate competition among the coal mining companies for supplies of pit wood and to allocate the supplies purchased so that each colliery could receive its fair share and no more. This association effected a more equitable distribution and great economy was brought about. By the end of 1917 this association had obtained control of 149 woods in various parts of South Wales with output capacity of nearly 200,000 tons.

Government Limits Supplies—Fluctuation in Prices.

In order to prevent hoarding and to provide for a more equitable distribution the Government on December 19, 1917, issued an order that no more than 12 months' consumption of pit wood could be held in stock by any coal mine. The prices of imported pit wood fluctuated violently during 1917, in January from $12.65 per load of 50 cubic feet ex ship Swansea to $18.25, at which figure prices remained until the end of July; in August prices fell rapidly to $13.87 and then recovered to $18.25 until the end of the year. Late in December, 1917, the Government fixed the maximum price at which imported and home-grown timber could be sold at the following prices: Home grown delivered on rail at colliery siding and imported French, Spanish, or Portuguese timber ex ship at port of unloading, $14.60 per ton for hardwood and $15.82 for softwood. The average price of French, Spanish, and Portuguese pit wood ex vessel Swansea in December, 1915, was $5.11 per ton; 1914, $6.08; 1915, $12.77; 1916, $12.17; and 1917, $18.25.

Decreased Grain Imports—Tar and Pitch for Briquets.

During the prewar year of 1913 the imports of grain (wheat, barley, and corn) into Swansea amounted to 90,068 long tons; in 1914 there was a slight decrease to 89,293 tons; in 1915 the imports showed an increase to 99,232 tons, the largest importation of grain on record; in 1916 a decrease to 89,657 tons took place, and in 1917 a further decrease to 69,057 tons, the lowest importation of grain on record. The decrease in 1917 was due to the world-wide shortage in supplies of grain and to lack of shipment tonnage.

Previous to the war considerable quantities of tar and pitch were imported into Swansea for binding materials in the manufacture of coal briquets. In 1913 these imports amounted to 64,521 tons; in 1914 to 53,840; in 1915 to 33,115; in 1916 to 23,292; and in 1917 to only 5,695 tons. The shortage in supplies was made up to some extent by local manufacture.

Principal Imports for Past Five Years.

The quantities of imports in tons of 2,240 pounds, at Swansea, by principal articles, during each of the five years ended December 31, 1913 to 1917, are given in the following table:

Articles.	1913	1914	1915	1916	1917[a]
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Breadstuffs:					
Grain (wheat, barley, corn)	90,068	89,293	99,232	89,657	69,057
Flour	18,640	19,384	18,674	14,991	4,377
Coal, gas	3,919	2,776	776	568	270
Copper, silver, lead, tin ores, and alloys	58,268	57,532	38,342	37,499	10,501
Earthen and stone ware: Bricks, tiles, slates, cement	37,038	41,784	25,667	15,670	13,035
Fish	7,884	9,115	5,588	5,153	4,081
Iron ore	77,337	87,248	79,828	64,674	65,070
Iron and steel manufactures:					
Iron in pigs, scrap, iron and steel	131,457	113,043	83,399	33,891	62,911
Steel bars and billets	44,102	21,208	5,699	537	12,023
Sugar	15,332	10,774	1,800	1,740	590
Sulphur ore	63,456	63,321	73,711	116,695	27,552
Tar and pitch	64,521	53,840	33,115	23,292	5,695
Wood:					
Deals, battens, boards	65,876	46,331	36,196	17,523	10,717
Pit wood	137,496	94,317	93,169	91,586	47,731
Zinc ore	39,827	83,904	58,048	54,958	86,499
All other articles	241,778	211,975	155,759	102,890	78,908
Total	1,096,999	1,005,850	809,003	671,324	499,017

[a] Advanced estimates subject to revision.

Iron and Steel Exports at Swansea Decrease.

The exports of Swansea during 1917 amounted to only 3,597,250 long tons compared with 6,134,251 tons in 1913, a decrease of 41 per cent. In 1917, of the total exports of 3,597,250 tons, 3,318,503 tons or 92 per cent consisted of coal and briquets and 183,612 tons or 5 per cent consisted of iron and steel products, mostly tin plates, leaving only 3 per cent for all other articles. In the prewar year 1913, 88 per cent of the total exports consisted of coal and briquets, 9 per cent of iron and steel products, and 3 per cent of all other articles. Thus during 1917 a greater proportion of the total exports consisted of coal and a lesser proportion of iron and steel than in 1913. Expressed in a different way, the decrease in the exports of coal during 1917, compared with 1913 was 39 per cent, as against a decrease of 67 per cent in the exports of iron and steel products. The greater decrease in the exports of iron and steel products was due to the fact that tin plates are not essential for military purposes, while the war has brought about greatly increased demands for coal in France.

Export Restrictions Do Not Lower Coal Prices.

With the outbreak of war in 1914 the coal trade of the United Kingdom was for a time paralyzed due to the shutting off of the large markets in Germany, Belgium, Austria, and Black Sea ports, as well as on account of the closing down of coal-consuming industries, both at home and abroad. Prices dropped below the prewar level and did not recover until the end of 1914. At the beginning of 1915 prices rose so rapidly that by May the highest prices up to then recorded were attained. These high prices constituted a grave danger to coal consumers within the country and, in order to bring

prices down, exports were restricted by Government orders. The result was that the prices of the prinicpal export coals fell to prewar prices. On the other hand, coal in the inland fields, ordinarily used almost entirely for consumption within the country, continued to rise in price. The restrictions placed on exports, therefore, failed to reduce prices of coal for local consumption and were then abandoned.

Price of Coal Limitation Act.

In July, 1915, the "Price of Coal Limitation Act" was passed, by which "coal at the pit's mouth was not to be sold or offered for sale directly or indirectly by the owner of the coal or on his behalf at a price exceeding by more than 4s. (96 cents) per ton the price of coal of the same description sold in similar quantities and under similar conditions affecting the sale at the pit's mouth at the same coal mine on the corresponding date in the 12 months ended June 30, 1914." The cost of production of coal continued to increase at such a great rate that on June 1, 1916, the limitation price for coal at the pit head in South Wales was increased from 4s. (96 cents) per ton to 6s. 6d. ($1.58) per ton, and on October 12, 1917, the price at the pit's mouth was increased to 9s. ($2.19) per ton, above the price prevalent during the year ended June 30, 1914. The passage of the "Price of Coal Limitation Act" in July, 1915, was for the purpose of protecting home coal consumers from the high prices then prevalent. This act was followed by the withdrawal of the export restrictions, with the result that the exports of coal began to increase, and by the spring of 1916 the price of export coal had risen to an abnormal height. These prices, along with the high rate of freights, caused considerable complaint from French and Italian buyers.

In order to reduce the cost of coal to French purchasers on June 1, 1916, the maximum rate of freight and price of coal shipped to French ports on the Atlantic coast were fixed by the British Government. The freight rate from Bristol Channel ports was fixed at $5.96 per ton, as compared with $7.74, prevalent in the open market before the adoption of the controlled rate, and as against $1.40 per ton in 1913 (average for the year). The price of coal was limited to a maximum of 30s. per long ton ($7.30) for large coal and 20s. ($4.86) for small coal f. o. b. nearest customary shipping place for each colliery. In the case of Welsh anthracite, where additional cost was incurred incident to the breaking, washing, and sorting of the coal, the above maximum price could be increased by this amount. On October 30, 1916, this limitation scheme was extended to French ports in the Mediterranean and Italy.

Fixing All Coal at Same Rate—Controlled Prices.

This controlled price of coal did not meet with entire satisfaction for the reason that all large coal was fixed at the same rate of $7.30 per ton, without taking into consideration the various qualities. Thus, the poorer qualities of large coal had to be sold at the same rate as the best quality. This anomaly was rectified, however, on October 15, 1917, when an amended schedule of controlled prices was issued by the Controller of Coal Mines.

Under this amended order prices were fixed for each separate quality of coal. The controlled prices of the principal grades of coal, which became effective on October 15, 1917, were as follows:

Class of coal.	British currency.	Equivalent in U. S. currency.	Class of coal.	British currency.	Equivalent in U. S. currency.
Steam:	s. d		Anthracite:	s. d.	
Smokeless best	33.0	$8.03	Best breaking, large	30.0	7.30
Smokeless, second quality	31.6	7.66	Second breaking, large	29.0	7.06
Seconds	30.9	7.48	Third breaking, large	27.6	$6.69
Ordinaries	30.0	7.30	Red vein, large	25.6	6.20
Best drys	30.0	7.30	Machine-made cobbles—		
Ordinary drys	28.6	6.93	Best	42.6	10.34
Steam smalls—			Seconds	41.0	9.98
No. 1	21.6	5.23	Thirds	39.0	9.44
No. 2	21.0	5.11	Red-vein cobbles	36.0	8.76
No. 3	20.6	4.99	Machine-broken nuts (French, Paris, and stove)—		
No. 4	20.0	4.87	Best	42.6	10.34
No. 5	19.6	4.74	Seconds	41.0	9.98
No. 6	19.0	4.62	Thirds	39.0	9.44
No. 7	18.6	4.50	Red-vein nuts	36.0	8.76
No. 8	18.0	4.38	Machine-broken beans, best	35.0	8.52
Washed smalls	22.6	5.47	Seconds	34.0	8.27
Best black vein, large	30.0	7.30	Thirds	33.0	8.03
Ordinary western valley	29.0	7.06	Red-vein beans	31.0	7.54
Best eastern valleys	29.0	7.06	Peas, all qualities	20.0	4.87
Second eastern valleys	28.0	6.81	Rubbly culm	13.0	3.16
Best washed nuts	30.0	7.30	Red-vein culm	11.0	2.68
Seconds	28.6	6.93	Breaker duff	8.0	1.95
Best washed peas and beans	27.6	6.69	Billy duff	6.6	1.58
Seconds	26.6	6.45	Steam (Swansea):		
Unwashed duff—			Best, large	30.0	7.30
First quality	18.0	4.38	Second, large	27.0	6.57
Second quality	16.0	3.89	Best, through	23.6	5.72
Third quality	14.0	3.41	Second, through	22.0	5.35
Bituminous:			Best, smalls	19.0	4.62
Best households	33.0	8.03	Second, smalls	17.0	4.14
Good households	30.9	7.48	Screened cobbles	30.0	7.30
No. 3 Rhondda, large	30.9	7.48	Screened nuts	30.0	7.30
Smalls	26.0	6.33	Screened beans	27.6	6.69
No. 2 Rhondda, large	27.0	6.57	Bituminous (Swansea):		
No. 2 Rhondda, through	23.6	5.72	Through and through	27.0	6.57
No. 2 and other through (seconds)	22.0	5.35	Smalls	24.0	5.84
No. 2 Rhondda, smalls, best	19.0	4.62	Gas (Swansea):		
No. 2 Rhondda, seconds	17.0	4.14	Through	23.6	5.72
Gas, through	25.0	6.08	Smalls	21.0	5.11
Gas, small	21.0	5.11	Patent fuel	30.0	7.30
			Coke-oven coke	47.6	11.56

The order of October 15, 1917, also provided that the above controlled prices should be extended to all shipments to British possessions and protectorates, to bunkers supplied to all British vessels and to ships sailing under the flags of Allied nations at limited freight in the French and Italian coal trade. The above prices are subject to an increase of 2s. 6d (60 cents) per ton, except in the case of shipments to France and Italy.

Coal Production Decreased.

Since the outbreak of war in 1914 the production of coal in the United Kingdom has declined; the home consumption, the quantities needed by the army and navy, and imports into France have risen. In 1913 the production of coal in the United Kingdom amounted to 287,412,000 long tons (ton of 2,240 pounds) of which 189,692,004 tons were consumed within the country and 97,719,996 tons (including coke, patent fuel, and bunkers on foreign-going steamers) were exported. In 1916 the production had declined to 255,846,000 tons of which 54,145,918 tons were exported and 201,700,082 tons were con-

sumed at home. In 1913, 66 per cent of the total production was consumed within the country and 34 per cent exported, while in 1916 78 per cent was retained at home and only 22 per cent exported. Although the production in 1916 showed a decrease of 19 per cent compared with 1913, the actual amount of coal consumed within the United Kingdom in 1916 represented an increase of only 6 per cent above the actual consumption in 1913. With a production of almost one-fifth less in 1916 over the normal output previous to the war and with an increase of 6 per cent in home consumption, the Government found it necessary to restrict exports except for absolutely essential war purposes. The large export trade to neutral countries in Europe and South America had to be sacrificed in order that adequate supplies be retained within the United Kingdom for munition factories, that the naval forces of the Allied fleets be supplied with sufficient fuel, and that the armies, factories, and people of France should be able to obtain adequate coal supplies.

Official figures of the production of coal in the United Kingdom during 1917 have not been issued. A conservative estimate would make the output about 250,000,000 long tons compared with 287,412,000 tons in 1913. Of the total estimated production of 250,000,000 tons in 1917, probably about 55,000,000 were exported, including bunkers supplied to vessels proceeding to foreign ports, which would approximate 13,000,000 tons, leaving a balance of exportable cargo coal at about 42,000,000 tons, compared with an exportation of cargo coal in 1913 of 76,688,446 tons.

The exports of coal, including coke and briquets, from the United Kingdom to each principal country during 1913 and 1916, according to official returns, are given in the following table in tons of 2,240 pounds:

Exports of Coal from United Kingdom.

Countries exported to.	1913	1916
Allies of Great Britain:	*Tons.*	*Tons.*
British possessions (including Egypt)	5,767,584	1,906,790
France	14,800,414	19,687,899
Italy	9,971,858	6,157,451
Belgium	2,031,077	.....
Portugal	1,618,877	1,112,201
Russia	6,111,274	5,204
Roumania	282,354	.....
Total	40,583,438	28,869,545
Enemies of Great Britain:		
Germany	8,972,783	.....
Austria	1,206,199	.....
Turkey	402,265	.....
Bulgaria	56,585	.....
Total	10,637,832	.....
Neutral countries:		
Norway, Sweden, Denmark	10,644,121	6,718,835
Netherlands	2,663,759	1,347,431
Spain	2,938,590	2,540,485
Greece	764,602	207,559
South America	7,550,474	1,283,117
All other countries	514,630	173,197
Total	24,476,176	12,270,615
Grand total	75,697,446	41,140,160
Coal shipped for use of steamers in foreign trade	21,031,350	12,988,172
Grand total	96,728,796	54,128,332

From the above table it will be seen that coal exports from the United Kingdom during 1916 as compared with the prewar year 1913, to every country with the exception of France, showed a remarkable decrease. The total coal exports decreased from 76,000,000 tons in 1913 to 41,000,000 in 1916; to British possessions and Allied countries the decrease was from 40,000,000 to 28,000,000 tons; to neutral countries from 24,000,000 to 12,000,000 tons; and to enemy countries from 10,000,000 tons to nothing.

The combined coal exports to present enemy countries, including countries occupied by the enemy (Belgium, Russia, and Roumania), in 1913 amounted to a little over 19,000,000 tons. In 1916 this large trade was completely lost. On the other hand exports to France in 1916 increased by nearly 5,000,000 tons compared with 1913. In 1913 about 41,000,000 tons of coal were produced in France, 18,000,000 tons were imported from Germany and Belgium, and nearly 15,000,000 tons imported from the United Kingdom, representing a total consumption in France of approximately 74,000,000 tons. In 1916, due to the fact that a large portion of the coal mines in northern France were occupied by the German forces, the production dropped to about 24,000,000 tons, no imports were received from Belgium and Germany, and the United Kingdom supplied nearly 20,000,000 tons, so that the total coal available in France amounted to only 44,000,000 tons compared with a normal supply of 74,000,000 tons. The exports of American coal to France amounted approximately to only 180,000 tons.

Coal Tonnage Losses in the United Kingdom and South America.

The following figures summarize the loss in coal trade of the United Kingdom during 1916 compared with the normal year 1913:

Decrease in exports to—	Long tons.
British possessions and Allies (excluding Allied countries occupied by enemy)	3,000,000
Neutral countries	12,000,000
Enemy countries (including Allied countries occupied)	20,000,000
Total trade lost	35,000,000

Of the total decrease of 12,000,000 tons to neutral countries, over 6,000,000 tons represented the loss of trade to South American countries, exports of British coal to South America having declined from 7,500,000 tons in 1913 to less than 1,500,000 tons in 1916. In 1916 South America made up only a small part of the shortage in its imports of coal by obtaining supplies from the United States. In 1913 only about 441,000 tons of coal were exported from the United States to South America, while in 1916 these exports increased to about 1,840,000 tons. Even with this large increase in imports of American coal South America imported in 1916 over 4,000,000 tons of coal less than in the normal year 1913.

Coal the Basis of Britain's Trade.

In 1913 the production of coal in the United Kingdom was the highest on record, when the total output reached 287,430,000 long tons, equivalent to about 321,921,600 short tons, of which amount approximately 85,790,000 short tons were exported as cargo in the shape of coal, coke, and briquets and 23,520,000 short tons as bunkers for vessels in the foreign trade. The value of the exports of cargo coal,

coke, and briquets from the United Kingdom in 1913 was $261,134,740, or a fraction over 10 per cent of the total value of all merchandise exported in that year. The United Kingdom produced in 1913 only 22 per cent of the coal production of the world but exported nearly 50 per cent of the world's exports of coal, while the United States produced nearly 40 per cent of the world's production and approximately only 12 per cent of the world's exports.

If, however, only the sea-borne foreign coal trade be considered, the British over-seas trade in coal in 1913 was more than twice that of the whole world put together, or approximately 71 per cent of the world's trade. All of the foreign coal trade of Britain is sea-borne, while the greater portion of the coal exported from the United States is shipped by rail into Canada, so that the share of the United States in the world's sea-borne foreign coal trade was in 1913 approximately only 4 per cent.

British Mercantile Marine Founded on Coal Trade.

The immense foreign coal trade of the United Kingdom, which reached a total of nearly 100,000,000 tons in 1913, is the foundation upon which has been biult the entire foreign commerce of the country as well as the expansion of the mercantile marine. For the transportation of this coal, the building of an immense fleet of steamers was necessary. Without the coal trade, Britain would not have by far the largest mercantile marine in the world. According to Lloyd's Register for 1915–16, the merchant shipping of the world amounted to 49,261,769 gross tons, of which 19,541,368 tons were owned in the United Kingdom, the United States being next with only 5,892,639 tons, and Germany with 4,706,027 tons. The United Kingdom has been able to send its coal to all parts of the world at a cheap freight rate for the reason that the ships were always able to obtain return cargoes of raw materials needed for the manufacturing industries at home, such as wool, cotton, ores, and timber. In this way the outward freight on coal and the homeward freights on raw materials were low, thus making it difficult for countries like the United States to compete. The United States, not being a large importer of food or other heavy commodities suitable for return cargoes on coal exporting vessels, in exporting coal to foreign countries frequently was unable to obtain return cargoes and consequently the coal exporters had to bear the cost of the round trip.

Coal is thus the basis of Britain's mercantile shipping and manufacturing industry. Coal enabled British shipowners to obtain outward freights on vessels proceeding to foreign ports for needed raw materials; coal enabled British manufacturers to obtain low freight rates on imported raw materials, thus making it possible to manufacture at a cost so low that these manufactured goods could be exported. Without a great export trade in coal, Great Britain could not have become the greatest shipping country in the world and one of the greatest exporters of manufactured goods.

United States a Competitor for South American Coal Trade.

Since the outbreak of war Britain's exports of coal have so declined to South America that a largely increased market has been found for coal from the United States. Whether at the end of the war the South American market can be retained by United States exporters

of coal will depend largely on the freight rates. If American ships taking coal to South America have to return in ballast, it will probably be impossible to compete with British rates. Every inducement, therefore, seems needed to increase the imports into the United States from South America. The establishment in the United States of free ports would assist greatly, as then South American products could be imported as return cargoes on coal-exporting vessels for storage free of duty in the free ports for reexportation to Europe and other countries.

The United States is by far the greatest coal-producing country in the world. It is of vital necessity that large foreign markets be found for American coal. As I have shown above coal is the basis of a great foreign trade. But a large export trade can not be obtained unless there is also a great import trade; for otherwise shipping would have to bear the cost of steamers returning empty.

Coal Trade of South Wales.

According to the South Wales Coal Annual for 1918, the world's production of coal in 1913 amounted to 1,321,000,000 long tons, of which 287,400,000 tons were produced in the United Kingdom or 22 per cent of the world's production. Of the total production in the United Kingdom, 20 per cent or 56,830,000 tons were produced in South Wales. In 1913 of the total coal exports of the United Kingdom, 41 per cent of the coal, 9 per cent of the coke, 99 per cent of the briquets, and 23 per cent of the bunkers came from South Wales. In 1916 the proportion of the exports of South Wales to the exports of the United Kingdom increased to 45 per cent of the coal, 14 per cent of the coke, 97 per cent of the briquets, and 26 per cent of the bunkers. Figures for 1917 are not available.

The following table shows the total productions and exports of coal, coke, and briquets of the South Wales field compared with all other coal fields of the United Kingdom in long tons during 1913 to 1917, inclusive:

Year.	South Wales.		All other fields.		Total of United Kingdom.	
	Production.	Exports.	Production.	Exports.	Production.	Exports.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
1913	56,830,072	36,782,277	230,581,797	60,937,719	287,411,869	97,719,996
1914	53,879,728	30,434,644	211,784,665	49,931,420	265,664,393	80,366,064
1915	50,452,600	23,563,366	202,753,481	35,837,942	253,206,081	59,401,308
1916	52,080,709	22,349,833	204,267,642	31,805,085	256,348,351	54,145,918
1917 [a]	49,500,000	20,886,000	195,500,000	30,564,000	245,000,000	51,450,000

[a] Estimates.

Anthracite Coal Trade of Swansea District.

The bulk of the coal produced in the Swansea district is of anthracite quality. Throughout 1917 very heavy demands for anthracite coal came from French and Italian buyers. The shortage of ships available, however, made it impossible to export the quantities required, with the result that the anthracite mines were compelled to close for considerable periods during the year. Figures of the total production of anthracite coal during 1917 are not available, but the output probably was the lowest for the last 10 years.

Prices during 1917 fluctuated considerably. In January, best breaking large anthracite varied from $6.80 to $5.96 per ton f. o. b. Swansea; from February to June 1, the price remained steady at $6.20; on June 28 the price was fixed by Government order at $7.30; and on October 15 the controlled price was increased to $7.90 for all shipments outside of France and Italy.

The price of machine-made nuts, beans, and peas remained steadier than other qualities, due to the more regular demands. Culm, duff, and to a less extent large anthracite coal during the last part of 1917 had accumulated in large quantites due to lack of available tonnage.

The following table shows the exports of coal, coke, and patent fuel (briquets) in long tons through each principal port of the Swansea district during the years 1913 to 1917, inclusive:

Items.	1913	1914	1915	1916	1917
Swansea:	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Coal and coke	4,530,175	3,791,293	3,804,286	3,225,995	2,539,915
Patent fuel	924,731	711,141	713,300	817,378	778,588
Total	5,454,906	4,502,434	4,517,586	4,043,373	3,318,503
Port Talbot:					
Coal	2,207,399	1,614,200	1,987,841	2,311,617	1,419,564
Coke	6,066	14,526	25,014	18,423	12,981
Total	2,213,465	1,628,726	2,012,855	2,330,040	1,432,545
Llanelly:					
Coal	308,083	268,193	154,196	165,422	156,756
Totals:					
Swansea	5,454,906	4,502,434	4,517,586	4,043,373	3,318,503
Port Talbot	2,213,465	1,628,726	2,012,855	2,330,040	1,432,545
Llanelly	308,083	268,193	154,196	165,422	156,756
Grand total	7,976,454	6,399,353	6,684,637	6,538,835	4,907,804

From the above table it will be seen that the total exports of coal, coke, and briquets through the three principal ports of the Swansea district declined from nearly 8,000,000 tons in 1913 to just under 5,000,000 in 1917.

Tin Plate Trade.

Tin plates are made of steel sheets coated with tin. Only from 2 to 6 pounds of tin per 100 of steel are used in the plates. The more tin used the higher the grade of the plates. There are several grades and sizes of plates. Market quotations are based on "commons," the trade term for I. C. coke tin plates, 14 inches by 20 inches, 112 sheets to a box of 100 pounds. Charcoal finished "commons" are coated with 5 to 6 pounds of tin per 100 pounds of steel as against 2 to 3 pounds for coke "commons" and consequently bring higher prices.

Black plates are steel sheets ready for a coating of tin. Terne-plates are coated with a mixture of tin and lead. They are largely used for the lining of packing cases and for containers of goods shipped to tropical countries. "Wasters" are defective plates containing "pin holes." "Taggers" are plates which are undersized and run below the gauge of the box for which they were made.

In normal times the principal uses of tin plates were for the manufacture of tin cans for provisions, fruits, milk, tobacco, gasoline, kerosene, etc. The higher-priced plates were generally used for milk churns and cans for fish and fruits, as the chemical action would

eat through the more thinly coated cheaper plates. "Wasters" were employed for the manufacture of cheap kitchen utensils and toys such as are sold in the 5-and-10-cent stores.

Tin-Plate Mills Closed.

The normal productive capacity of tin, terne, and black plates in the United Kingdom is estimated at about 1,000,000 tons per annum, over 80 per cent of the mills being located within 20 miles of Swansea. In 1913 the United States produced approximately 823,000 tons of tin plates; 1914, 931,000 tons; 1915, 1,080,000 tons; 1916, 1,204,500 tons; and in 1917 the total production probably exceeded 1,600,000 tons. Since 1913 the production in the United Kingdom has steadily decreased while that of the United States has shown a remarkable increase. Soon after the outbreak of war in 1914 the British authorities found it necessary to restrict the amount of steel to be used for the manufacture of tin plates for the reason that tin plates were not primarily needed for war purposes and large quantities of steel were essential for the manufacture of munitions of war. Exports of tin plates were prohibited except on license. Steel could be used or manufactured for tin plates only on a Government order, and finally in 1917 all domestic sales of tin plates were prohibited except with a Government permit. These restrictions resulted in the closing of a large number of tin-plate mills.

America Exceeds United Kingdom in Tin-Plate Exports.

In 1914, just previous to the war, there were about 580 tin-plate mills in operation in South Wales, but in December, 1917, only 235 mills were working. In 1913 the exports of tin plates from the United Kingdom reached the record figure of 494,497 long tons; in 1914 there was a small decline to 435,497 tons; 1915 showed a large decrease to 368,778 tons; 1916 to 321,654 tons; and in 1917 the exports were 177,218 tons. In the year just previous to the war the United States exported less than 75,000 tons of tin plates as compared with nearly 500,000 tons for the United Kingdom. In 1916 American tin plates were exported to the amount of 227,000 tons as against 321,654 tons for the United Kingdom. In 1917 American exports were practically the same as in 1916. For the first time on record they exceeded those of the United Kingdom, which in 1917 decreased to 177,218 tons.

In 1910 the United Kingdom exported 73,619 tons of tin plates to the United States. By 1912 this large trade had dwindled to only 2,135 tons due to the increased American import tariff. In 1913 there was a large increase to 21,516 tons and it is probable that this increase would have continued had the war not put a stop to British exports. In 1916, only 838 tons of British tin plates were exported to the United States. On the other hand in 1916 the United States exported to the United Kingdom over 24,000 long tons of tin plates. Since 1913 the United States has developed a large trade for tin plates in South America, British India, China, and Japan, which countries formerly obtained the bulk of their wants from Great Britain. With the entrance of the United States into the war the continued development of an export trade in tin plates will probably cease as doubtless the tin-plate manufacturers will be restricted in their output to the same extent as the British manufacturers.

To a small extent new warlike uses have been found for tin plates, such as linings for ammunition cases, hand grenades, eyelets for gas helmets, and small inner cases for shrapnel shells.

Tin-Plate Prices—Wages of Tin-Plate Workers.

Prices during 1917 fluctuated between 27s. ($6.57) and 37s. 6d. ($9.12) per box of 112 sheets for "commons" (I. C. 14″ by 20″) f. o. b. railway at factory. In August by Government regulation the maximum price was fixed at 30s. ($7.30) based on the cost of tin at £240 ($1,168) per ton. These prices were made subject to an increase of 3 cents per box for each advance of £5 ($24.33) in the price of tin. The price of terneplates was fixed at 28s. ($6.81) per box with tin at £240 ($1,168) per ton, subject to a rise of 3 cents per box for each advance of £20 ($97.33) per ton in the price of tin.

In October, 1917, wages were increased by granting to workers in the tin-plate mills a bonus of from 40 per cent to 72 per cent of the weekly earnings. The following table shows the weekly earnings and bonus granted:

Weekly earnings.	Bonus per-centage.	Bonus.	Total.
Up to $4.87	52½	Up to $2.55	Up to $7.42.
$4.88 to $7.30	72½	$3.53 to $5.29	$8.41 to $12.59.
$7.31 to $9.73	67½	$4.93 to $6.56	$12.24 to $16.29.
$9.74 to $12.16	62½	$6.08 to $7.60	$15.82 to $19.76.
$12.17 to $14.60	60½	$7.36 to $8.83	$19.53 to $23.43.
$14.61 to $17.04	50	$7.30 to $8.52	$21.91 to $25.56.
$17.05 to $24.33	42½	$7.24 to $10.34	$24.29 to $34.67.
$24.33 and up	40	$9.73 and up	$34.06 and up.

Exports of Tinplates from Swansea District.

The exports of tin, terne, and black plates by sea through the principal ports of the Swansea district during 1917 were the lowest on record, amounting to only 188,300 long tons compared with 551,191 tons in 1913. The following table shows these exports for each port during the five years, 1913 to 1917:

Items.	1913	1914	1915	1916	1917
Swansea:	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Tin, terne, and black plates	468,229	415,699	376,185	309,550	158,994
Galvanized sheets	78,627	55,801	19,398	6,820	1,643
Port Talbot:					
Tin, terne, and black plates	11,420	9,710	6,435	5,168	21
Llanelly:					
Tin, terne, and black plates	71,542	70,152	47,572	48,066	29,285

Previous to the war Swansea had a considerable trade in galvanized sheets, the exports in 1913 amounting to 78,627 long tons. In 1917 this trade had decreased to only 1,643 tons.

Chemicals manufactured in the Swansea district consist largely of by-products from the copper, zinc, and nickel smelting works. The principal chemicals manufactured are copper and iron sulphates, nickel salts, oxalic and sulphuric acids. In 1913 the total exports of chemicals, mostly copper and iron sulphates, amounted to 24,169 long tons; in 1914, 21,929 tons; 1915, 27,211 tons; 1916, 13,110 tons; and 1917, only 8,114 tons.

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Trade with the United States.

Figures of the direct imports from the United States by sea into Swansea during 1917 are not available. In 1916, these imports amounted to 70,289 long tons of which 52,346 tons were foodstuffs, mostly grain; 8,476 tons of timber; 4,633 tons of copper, zinc, nickel, lead; and 4,604 tons of iron and steel products. The direct imports by sea, however, consist of only a small portion of the consumption of American products in the Swansea district. Nearly all the general merchandise imported from the United States is purchased through agents in the large distributing centers in London, Liverpool, and Manchester. There are no large wholesale houses or jobbers located in Swansea except in raw materials, as ores, pig iron, timber, and grain. During 1917, however, the retail shops received greatly increased quantities of American tinned milk, meats, and vegetables, while on the other hand, there has been a marked decrease in the quantities of American cutlery, razors, blades for safety razors, shaving soap, patent medicines, household hardware, boots, shoes, and men's hats, all of which articles have had a large sale in this district.

The exports to the United States declared at the Swansea consulate during 1917 were the lowest on record, being valued at only $79,350, compared with $3,100,600 in 1907, $181,500 in 1913, $553,720 in 1914, $305,370 in 1915, and $178,120 in 1916.

The following table shows the values of the declared exports to the United States in 1907, 1913, 1915, 1916, and 1917:

Articles.	Years ended December 31—				
	1907	1913	1915	1916	1917
Abrasive materials: Rottenstone	$750	$210	$1,130	$930	$1,230
Animals, live	.....	2,900	990	1,560	.....
Books: all kinds	150	.....	.....	.....	.....
Bricks:					
Fire	1,280	1,340	.....	.....	.....
Magnesite	.....	.....	.....	.....	.....
Silica	.....	.....	.....	.....	.....
Brass, old	20,350	.....	.....	.....	.....
Chemicals:					
Acids, oxalic	47,930	25,110	4,020	.....	.....
Ammonia, muriate of	600	.....	.....	.....	.....
Arsenic	19,150	.....	.....	.....	.....
Cobalt, oxide of	28,520	.....	3,700	.....	.....
Lead, antimonial	14,460	.....	.....	.....	.....
Nickel sulphates	10,650	13,370	25,450	7,520	29,960
Other chemicals unspecified	6,900	.....	.....	.....	.....
Coal and coke:					
Coal, anthracite	80,020	.....	.....	.....	.....
Fuel, manufactured	3,480	.....	.....	.....	.....
Copper:					
Bars and ingots	39,960	.....	.....	.....	.....
Matte	.....	63,920	.....	.....	.....
Regulus	.....	.....	20,830	87,600	46,310
Scale	.....	4,770	59,620	9,980	.....
Fish: Herrings	300	.....	.....	.....	.....
Hides and skins: Sheepskins	10,410	13,090	159,110	66,720	.....
Iron and steel:					
Black plates	.....	1,320	.....	.....	.....
Ferromanganese	26,060	.....	.....	.....	.....
Ladles	1,840	.....	.....	1,660	1,850
Terneplates	.....	170	.....	2,020	.....
Tin plates	2,755,900	53,890	25,350	.....	.....
Metals: Ferrovanadium	29,300	.....	.....	.....	.....
Timber: Tin-plate boxes	580	.....	.....	.....	.....
All other articles	1,920	1,410	5,170	130	.....
Totals	3,100,600	181,500	305,370	178,120	79,350

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